

Microsoft Power BI – Indian Mobile User - Data Analytics & Visualization (IMU Telecom)
--

IMU Telecom is a ML web concept by which the concern delivers actionable, data-driven insights by applying analytics and algorithms that have been in extensive usage.

IMU Telecom has a PAN India presence in the Indian Telecom market. For the purpose of this assignment we have been shared the User Data from 6 States – Madhya Pradesh, Chhattisgarh, J&K, Nagaland, Goa and Uttaranchal.

The key purpose of analytics and visualization is for users to have insights on the Data with the observations to the **Web UI Manager**, who immediately undertakes the task of converting the **Data Science Team** findings into a Microsoft Power BI **Interactive Dashboard** for client's ease of analysis.

The realistic concept is to look for patterns emerging out of user's demographic characteristics such as User's Gender, Age Group, Mobile App and Service usage, Geolocation, Phone Brand and Model.

Patterns emerging out of user behavior study would be summarized to IMU Telecom and can be further used to model company's offerings.

Behavioral analysis and modeling for Interactive Dashboard:

This project with Power BI by Microsoft was a web solution for IMU Client to provide insights into Indian Mobile users about their characteristics defined by utilization.

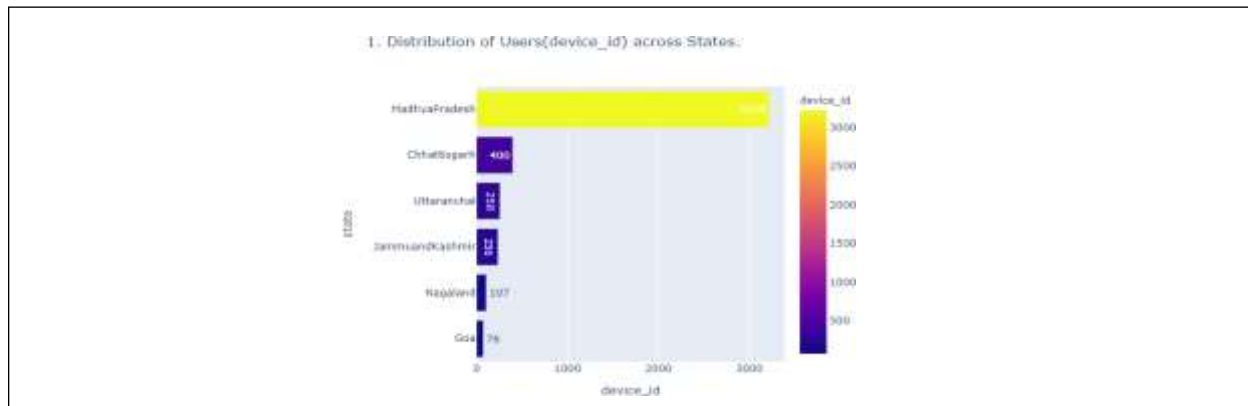
Project Objectives:

- Understand user's demographic characteristic based on:
 - Mobile usage
 - Geo location
 - Mobile device properties.
- Understand and study the User Behavior Characteristics across 6 states Madhya Pradesh, Chhattisgarh, J&K, Nagaland, Goa and Uttaranchal
- To segregate the user behavior based on data provided on age group, geography, mobile models used.
- Drive inferences over various data patterns and co-relations among them with help of Plots
- Provide actionable insights for marketing and product teams at IMU Telecom

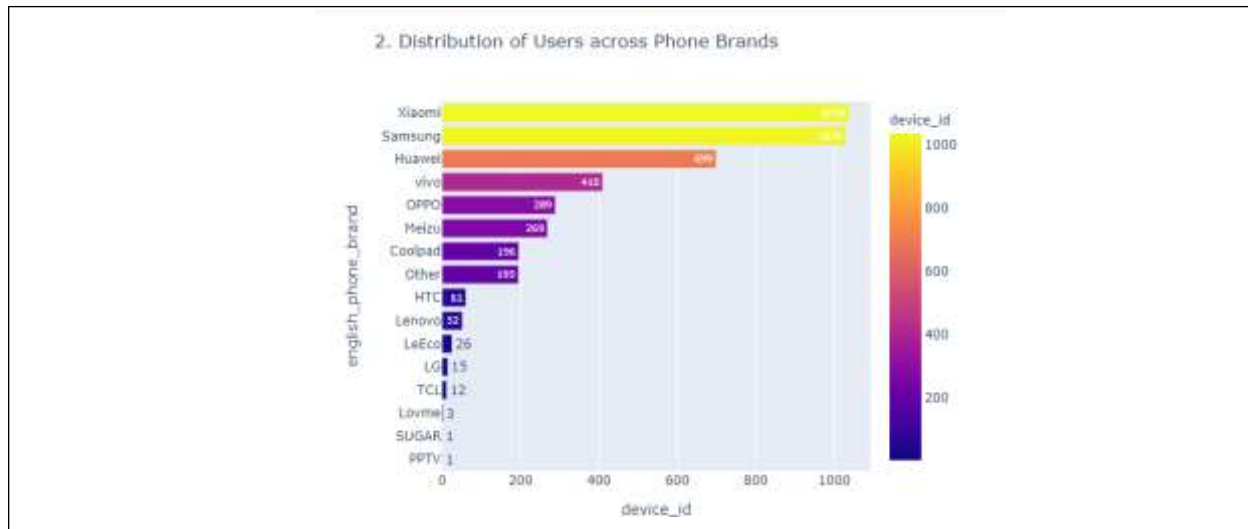
The Interactive Dashboard that combines information from various embedded data sources with which we could make required decisions in terms of additional features, user experience (UX) as well as user interface (UI), and general marketing efforts for effective.

Solution – Proposed to IMU Telecom:

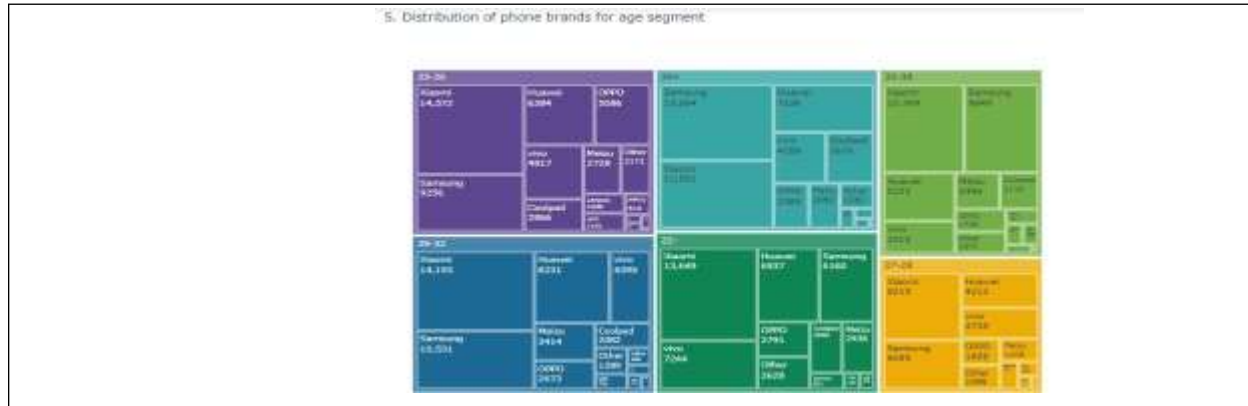
1. User Base distributed across the 6 States of Interest



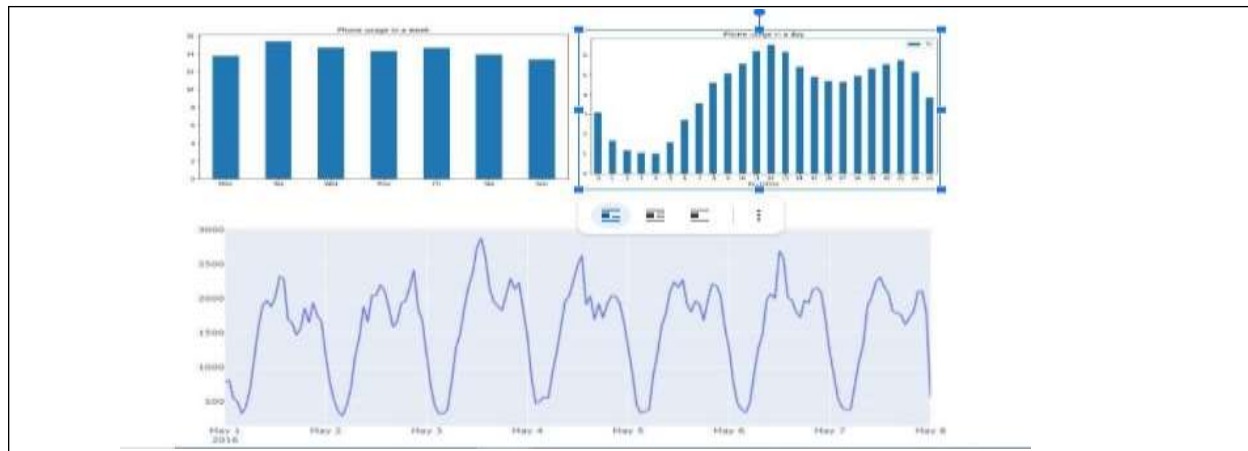
2. Popular Phone Brands in use by Users across All 6 States



3. Distribution of Phone Brands by Age Segment, State and Gender across the 6 States



4. Study the Hourly distribution of Phone Calls



Key Features utilized in MS Power BI:

- **Direct query** - connect to data sources without importing and caching that data in the data model.
- **Power Pivot, Power Queries & DAX functions**
- **Custom visual development**
- **Streaming datasets** –programmatically stream data to a Power BI dashboard, so that we can see data change in real time.
- **Python scripts, R**
- **Application embedding** – allows us to embed Power BI visuals, reports and dashboards into a custom web application as part of the custom solution.

Conclusion as Actionable Insights:

Marketing and Product Related

- Opportunity to Grow in 5 Other States other than MP exists for IMU Telecom with increased Marketing Focus.
- Female Gender can be a Growth Focus Area with some enhanced features around Safety or Grocery Shopping or others.
- Females tend to prefer some Chinese Phones like Oppo, Viva and others in certain states.
- Age Group of 21-39 seems to constitute the largest user base, however Opportunities exist in Over 39 Age group too.
- While Xiaomi is the most preferred model, in higher age brackets Samsung and Huawei seem popular as well and should be pushed further.
- IMU Telecom could explore forging partnerships with Mobile Phone Companies on Price and explore pushing the phone as a Bundle with its offerings. This could be a win win for All
- It was strange to see Users Device Id almost never change w.r.t Long / Lat. We could encourage Roaming with some encouraging Packages and Services

Operations Related:

- As the user base increases, Cloud based Elastic Model would be preferred to manage Load across Peak Periods around mid-day and evenings.
- Nighttime being low usage period should be used for Maintenance related activities.